

REMARKS

Below, the applicant's comments are preceded by related remarks of the examiner set forth in small bold type.

Claim Objections

Claim 12 is objected to because of the following informalities:

This claim is dependent on "any one of claims 8-10." However, claim 8 has been canceled.

Appropriate correction is required.

Claim 12 has been amended.

Claim Rejections - 35 USC § 112

Claims 1-3, 5-7, 9-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In amended claim 1, applicant has incorporated new matter in the "descaling" step and in both "rolling" steps, as outlined below.

The descaling step is now recited as being performed "in a reduction unit." However, as shown in Figure 1 and set forth in the specification on page 7 (lines 23-24), the slabs "undergo descaling by a first descaler 18a before being rolled by the reduction unit 13." (emphasis added)

The first rolling step is now recited as being performed "in a second heating furnace." However, as shown in Figure 1 and set forth in the specification on page 8 (lines 14-15), "A second heating furnace 15b is provided downstream from the reduction unit 13." (emphasis added)

The final rolling step is now recited as being performed "in a reversible manner." However, neither the original claims nor the original specification make any mention whatsoever of rolling the flat bars in the finishing mill "in a reversible manner."

Claim 1 has been amended.

Claim Rejections -35 U.S.C. § 103

Claims 1-3, 5-7, and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Passoni et al. (U.S. Patent No. 5,430,930) and Hirano et al. (U.S. Patent No. 5,651,411).

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Passoni et al. teach a method for manufacturing hot rolled sheets comprising the steps of passing molten steel through a continuous caster 4 to manufacture a slab; cutting the slab to predetermined lengths using cutter 8; heating the cut slabs 7 in a heating furnace 6;

descaling the cut slabs using descaler 28; rolling the cut slabs in a reduction unit 26; coiling the flat bars by a coiler/uncoiler 10; uncoiling the flat bars by coiler/uncoiler 10; and rolling the flat bars 11 to a predetermined thickness in a finishing mill 12 in a reversible manner prior to final coiling in down coiler 16. See Figures 1 and 2.

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Hirano et al. teach a method for manufacturing hot rolled sheets including width rolling cut slabs using a width roller 32. The width rolling takes place downstream from slab cutter 23 and heater 31, but upstream from descaler 27 and rolling mill 28. See Figure 8 and column 14, lines 3 1-52.

Passoni does not disclose or suggest "heating the cut slabs to 1000°C or above to form MnS precipitation on the cut slabs in a first heating furnace," as recited in amended claim 1. Passoni discloses a method and apparatus for manufacturing hot strip steel, but does not disclose or suggest formation of MnS.

What is lacking in Passoni is also not disclosed or suggested in Hirano. Hirano discloses: "Although Mn has an oxygen removing action and an action for fixing S which is impurity as MnS, when its content exceeds 1.5%, remaining austenite increases, a sufficient hardness cannot be stably kept and tenacity is reduced. Thus, the content of Mn is preferably 0.2-1.0%." (col. 13, lines 40-45) Hirano discloses that Mn can combine with S to form an impurity MnS, but does not disclose or suggest that manufacturing hot rolled steel sheets includes the step of heating cut slabs to 1000°C or above to form MnS precipitation on the cut slabs.

The applicant notes that the amendments to claim 1 are supported by page 7, lines 4-22 of the specification.

Please apply \$1020.00 for the Petition for Extension of Time fee and any other charges or credits to deposit account 06-1050, referencing attorney docket 12886-002001.

Applicant : Deung-Mo Che et al.
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Respectfully submitted,

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** See attached document certifying that Rex Huang has limited recognition to practice before the U.S. Patent and Trademark Office under 37 CFR § 10.9(b).*

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